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THE ACHIEVEMENT MOTIVE IN NORMAL AND MENTALLY RETARDED CHILDREN.

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THE CONCEPTUAL AND EMPIRICAL STATUS OF ACHIEVEMENT MOTIVATION WAS EVALUATED WITH RESPECT TO ESTABLISHING AN OBJECTIVE, QUANTIFIED, PREDICTIVE MEASURE OF SCHOOL PERFORMANCE FOR MENTALLY RETARDED CHILDREN. COMPARATIVE ANALYSES WERE MADE AMONG 3 SUBJECT SAMPLES--(1) A CONTROL GROUP OF 60 NORMAL CHILDREN, (2) AN EXPERIMENTAL GROUP OF 42 MENTAL RETARDATES, NOT IN SPECIAL CLASSES, AND (3) A SECOND EXPERIMENTAL GROUP OF 47 RETARDATES ENROLLED IN SPECIAL CLASSES. THE MEAN AGES OF THE GROUPS RANGED BETWEEN 15 AND 16 YEARS. MEASURES OF ACHIEVEMENT MOTIVATION, DERIVED FROM PROJECTIVE MEASUREMENTS IN INDIVIDUAL INTERVIEWS, AND MEASURES OF INTELLIGENCE AND ACADEMIC PERFORMANCE WERE OBTAINED AND ANALYZED. FINDINGS SHOWED THAT ACHIEVEMENT MOTIVATIONAL MEASURES WERE NOT READILY APPLICABLE TO THE PREDICTION OF ACADEMIC PERFORMANCE, EVEN WHEN CORRELATED WITH AN INTELLIGENCE MEASURE. RECOMMENDATIONS CALL FOR FUTHER RESEARCH ON THE FACTORS OF STUDENT BEHAVIOR, CHILD-REARING PRACTICES, AND STUDENT PERSONALITY RELATIONSHIPS AS EACH MIGHT RELATE TO SCHOOL ACHIEVEMENT. (JH)

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The Achievement Motive in Normal and Mentally Retarded Children[1]

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Motivation has long been considered an important factor in school performance. If a measure of motivation for specific school goals could be developed, it might stand with measures of intelligence in predicting school performance, and help in understanding children's behavior.

A measure of motivation has been developed by McClelland, et al. (1953). This is a measure of the achievement motive derived from content analysis of a modified Thematic Apperception Test (TAT) (see Murray 1943). The measure is still in the experimental stage of development, however, and this paper will be concerned more with certain theoretical issues than with the practical one of predicting academic achievement.

McClelland's theory of motivation postulates that a motive is a learned association between certain stimulus and response elements and a state of positive affect. The theory is essentially a reinforcement theory with the positive affect acting as the reinforcer. Early childhood experiences are assumed to be of primary importance.

Combining this theory with "expectancy" notions, Atkinson (1954) has pointed out that the motive which is learned is a generalized expectancy that under certain stimulus conditions certain classes of response will lead to reinforcement. Thus a generalized striving to reach difficult goals or to compete with others and come out ahead may be learned; a generalized achievement motive is acquired since this class of responses has been reinforced in the past.

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Implicit in McClelland's theory there seem to be two possible types of reinforcers. The first is extrinsic, such as praise and reward from teachers and parents; the second is intrinsic arising from the completion of a difficult task at a level of success surpassing the anticipated level.

McClelland stresses the significance of the early years in the acquisition of the achievement motive, which seems to be a generalized tendency to strive for success and to avoid failure. He points out that some people seem to be characterized by positive anticipation (hope of success), and others by negative anticipation (fear of failure).

Winterbottom (1953) has demonstrated that children who have high achievement motivation (sometimes referred to as n Achievement) come from families which stress independence in early training practices.

McClelland, Rindlisbacher, and deCharms (1955) have demonstrated that differences in child-rearing practices, along a dimension of independence, are related to ethnic, religious and socio-economic differences and, by inference to religious and cultural values.

The demonstration of the relationship between n Achievement and child-rearing practices has been assumed by Atkinson (1957) to mean that either hope of success or fear of failure is learned quite early in life. Another possibility exists, however; it may be that before either success or failure can be very important it is necessary that the child learn that achievement goals in general are important, i.e., acquisition of a generalized achievement orientation. After this success experiences will be seen as important and extremely rewarding, leading to positive anticipations; failures will also be important, but will lead to negative anticipation. While it is not

possible at this point to differentiate the acquisition of the generalized orientation from the specific anticipations, it may be possible to observe the effects of repeated success or failure in later years, presumably after the original orientation has been learned.

The main hypothesis of the present study grew out of the previous theory and research. It was that mentally retarded children would show less achievement motivation than normal children. The basis for the hypothesis was the observation and judgment that parents of mentally retarded children do not stress independence training in early childhood.

A second hypothesis was that mentally retarded children trained in special classes should show less anticipation of failure than mentally retarded children who remained in classes with normal children. One of the aims of segregation for the mentally retarded is to remove them from a situation where failures are an inevitable experience. Those mentally retarded children remaining in regular classes should show the effects of this negatively charged setting.

A practical rather than theoretical issue is the question of whether the n Achievement measure, as developed by McClelland et al., is a significant predictor of school achievement. The measure has been found to relate to many variables but it has been of equivocal value in predicting school grades (Micciuti & Sadacca, 1955).

In view of these results it seemed useful to attempt to get some measure of school achievement in the present study, with no anticipation of a high relation between the n Achievement measure and the level of academic achievement.

Another issue of practical importance is the relationship between intelligence and achievement motivation. Although no relationship is hypothesized within normal and mentally retarded groups, the main hypothesis predicts a difference between the groups. The between group difference should be due to differential early childhood training rather than to intelligence per se. It is necessary to check the relationship within groups, however, because the McClelland technique for assessing n Achievement uses a content analysis of thematic material. Intelligence is usually obtained from verbally oriented measures. Clearly there is a possibility of confounding in such procedures.

Another interesting issue is that mentally retarded children may be segregated and therefore pursue a different curriculum. In this case the school achievement of the children should reflect this differential. The amount of difference in achievement, bearing in mind the separate but related issue of fear of failure (vide supra), is an indicant of the impact of special and regular curricula on the mentally retarded.

Summarizing, then, we may state the following hypotheses:

Hypothesis 1. A. Normal children will have stronger achievement motivation than will mentally retarded children. B. No relationship between intelligence and n achievement will be obtained within groups of either normal or mentally retarded children.

Hypothesis 2. Mentally retarded children in special classes will have less fear of failure than will mentally retarded children in regular classes.

Hypothesis 3. School achievement and grade point average will be positively related to achievement motivation.

Hypothesis 4. School achievement will differ in mentally retarded children on the basis of segregation and non-segregation.

Procedure

Subjects

Three groups of subjects participated in the study, all drawn from schools in the metropolitan area of a large midwestern city. Group I (N = 47) consisted of all the students over the age of thirteen available for testing who were enrolled in special classes for the mentally retarded. The mean age was 15.00 years. These students have generally been in special classes for six or seven years.

Group II (N = 42) was selected from several schools in the same metropolitan area serving students from approximately the same socio-economic level, which might be described as predominantly lower-middle class. These students were selected from the school records as having I.Q.'s of less than 75, but who had not been placed in special classes. The ages in this group were all above thirteen years and six months with mean age of 15.2 years.

Group III (N = 60) was randomly selected from a population of sophomore students having a mean age of 15.7 years, with I.Q.'s (as measured by the Terman-McNemar scale of intelligence) above 75. These all came from one large school in the same metropolitan area as Grps. I & II. The school served an area roughly comparable to but slightly higher than the other two schools in socio-economic level.

Measure of achievement motivation

All Ss were interviewed privately in order to obtain a projective measure of achievement motivation. The procedure used was similar to that described by McClelland et al. (1953) except that Ss told their stories verbally as they did in the Winterbottom (1953) study.

The experimenter (E) introduced the task by giving the following instructions: "I am going to show you some pictures and I want you to make up a story about each one." When the S understood the task he was shown the first picture. The four questions used by McClelland et al. (1953) to help them to structure the story were slightly simplified to read as follows: 1. "Tell what is happening," 2. "Tell what happened before," 3. "Tell what is being thought or wanted," 4. "Tell what will happen."

E asked the questions in order allowing approximately one minute for each to be answered. The subjects had an 8 x 10 reproduction of the picture in view throughout his story. Four pictures were used in all. Pictures #8, #24, #28 and #62 (see Atkinson 1958) were selected since they had been found to correlate with high school grades by Ricciuti & Sadacca (1955).

The protocols thus collected were content analyzed by two scorers according to the procedure described by McClelland et al. (1953). Each story, which was judged to contain achievement imagery, was classified as either positive or negative. A story showing predominantly approach responses and instrumental behavior towards the achievement goal with a positive outcome was scored as "hope of success." A story showing predominantly avoidance responses and instrumental behavior toward the achievement goal with a negative outcome or no outcome stated was scored as "fear of failure." Approximately one-third of the protocols were analyzed by both scorers as a check on reliability. The percentage of agreement was, for achievement imagery 95.8%, all categories 87.8%, for "fear of failure" and "hope of success" 93.4%.[2]

Insert Table 1 about here

Measures of Intellectual Capacity and School Achievement.

Two measures were administered to the subjects in the classroom setting. As a non-verbal measure of intellectual capacity 30 of the Raven Progressive Matrices chosen on an odd-even basis were projected on a screen for 20 seconds each. Since this test is essentially a multiple choice test each subject was provided with a simple answer form and carefully instructed as to how to record his answers.

The following subscales of the California Achievement Tests (1957) were administered: Reading Vocabulary, and Reading Comprehension. Both mentally retarded groups received the same tests which were designed for grades three and four. The normal Group (III) received the comparable but advanced tests designed for upper grades. Raw scores for the tests can be transformed into grade placement by using the norms published by the California Test Bureau (1957), and thus the groups can be roughly compared.

As an additional measure of academic achievement grade point averages were computed for Group III (the normals). Attrition over a period of months reduced the number of subjects for this measure to fifty. It was not possible to compute grade point averages for the special class subjects due to the inconsistency in the meaning of grading systems.

Results

Between Group Comparisons

Table 1. presents means of the three basic measures in the study for each group plus the mean number of words produced in the TAT stories. The matrix scores show a highly significant difference ($p < .05$) in intellectual capacity.

This establishes the independent variable, but it is clear that although Groups I and II differ from Group III they also differ significantly from each other ($p.<.05$).

The main dependent variable, n Achievement, shows a highly significant difference between Group III, the normals, and Groups I and II ($p.<.01$).[3] No significant difference obtains between Groups I and II, although the mean for Group II is slightly higher. The three groups differ significantly ($p.<.05$) on the mean number of words produced on the TAT protocols, Group I having the highest mean and Group II the lowest.

As to mean grade placement there are again highly significant differences between all three groups ($p.<.01$). The normals are clearly much higher than either mentally retarded group, but again the mean for Group II is significantly higher than Group I ($p.<.05$).

Since Groups I and II differ significantly on the measure of intellectual capacity, any further differences found could not be attributed to their differing experiences in special and non-special classes respectively unless the variable of intellectual capacity were ruled out statistically. This was done by means of two techniques: a) analysis of covariance which removes the variance attributable to intellectual capacity in the two grade placement means, and b) selection of two subgroups matched for intellectual capacity from the total N in Groups I and II. Since both methods led to identical results and conclusions only the second will be presented here.

Insert Table 2 about here

Table 2 presents grade placement and n Achievement means for two subgroups matched for intellectual capacity by the Raven Progressive Matrices score.

Group Ia (N = 22) is the mentally retarded group from Special classes and Group IIa (N = 22) is the mentally retarded group from Non-Special classes. Analysis of variance reveals a significant difference between Group Ia and Group IIa in academic achievement ($p < .001$). No difference obtains in the n Achievement scores.

Insert Table 3 about here

Table 3 shows the number of Ss who showed fear of failure imagery in the TAT protocols. Only 13% of Group I (Special Classes) showed any fear of failure, while 36% of Group II (regular classes), and 38% of Group III (normals) had fear of failure imagery. Comparing Group I and II by X^2 results in a significant difference ($X^2 = 6.48$, $p < .02$).

Discussion of Between Group Comparisons

Reasoning from the established positive relationship between independence training in childhood and n Achievement, it was felt that the mentally retarded child would not receive as much training for independence as the normal child. The main hypothesis of the present study, therefore, was that mentally retarded children have less achievement motivation than normal children. This hypothesis is strongly supported by the data presented in Table 1. No attempt was made to demonstrate empirically that the mentally retarded children did indeed receive less independence training.

In interpreting these results one might argue that the method of measuring achievement motivation through eliciting stories offers a great advantage to the normal Ss, who are undoubtedly verbally more proficient than the mentally retarded Ss. Indeed, it was necessary to collect the stories orally from each S

individually in all groups since the mentally retarded Ss were unable to write stories in the group situation. In order to obtain a check on verbal productivity in this situation, the mean number of words produced in the protocols was computed for each group. These data give no support to the hypothesis that high n Achievement scores are simply the result of greater verbal fluency. Group I (mentally retarded, special classes), which had the lowest mean Achievement score, had the highest mean number of words produced in the TAT protocols. This result in itself is quite striking.

It is clear on the basis of the data from the Raven Progressive Matrices in Table 1., that we are justified in assuming that the two mentally retarded groups differ in intellectual capacity from the normal group, thus giving us a check on the independent variable. Unfortunately, the two mentally retarded groups are not equated as to intellectual capacity either, as it was hoped they would be. This is not surprising, however, since much more careful testing was used in the schools to identify and to place the Ss in the special classes. Fortunately, through statistical procedures meaningful comparisons may still be made between the two mentally retarded groups without the variable of intellectual capacity influencing the differences found. The data presented in Table 2. demonstrate that even when Groups I and II are equated for intellectual capacity (Groups Ia and IIa) they still differ significantly on mean grades placement. The matched groups were selected by taking an equal number of Ss from Groups I & II within a restricted range of the matrices scores (Range = 10-17 raw score).

Table 3. shows the distribution of fear of failure in achievement stories. The mentally retarded children in special classes show significantly less

"fear of failure" than do the mentally retarded children in regular classes.

These results have interesting theoretical implications. McClelland's theory of the acquisition of motives postulates that the achievement motive is learned early in life, from child training practices of the parents. As stated earlier, Atkinson (1954) has postulated that this early learning results in either hope of success or fear of failure. Another possibility is that an orientation to value achievement goals is the first thing that is learned from the parents and that once these goals have become important to the child, later experiences of success or of failure change this initial orientation into hope of success or fear of failure. The fact that children who are specially treated in school after the first roots of achievement motivation have been established have less fear of failure than those who have met failure in school, points to a later learning of the avoidance orientation implicit in fear of failure.

It is interesting to note that Group II, who have significantly more fear of failure, produce significantly fewer words on the TAT protocols than do Group I which has very little fear of failure.

In summary, significant differences have been established between the three groups on intellectual capacity, thus confirming the independent variable. The predicted differences are found with the independent variable, n Achievement; and the group of mentally retarded Ss from non-special classes show more fear of failure, and when they are equated for intellectual capacity have higher mean grade placement scores.

The data on total n Achievement in Table 1 might be interpreted as showing a relationship between n Achievement and intelligence, although previous research shows that this relationship is very low. This interpretation, which is contrary to one of the hypotheses of this study, can be adequately evaluated only after examination of the within group data.

Within Groups Comparisons

Having considered the "between" group differences, let us consider the "within" groups measures. Tables 1, 2, 4, 5, 6 and 7 present the relevant data. In Tables 4, 5, 6 high, medium, and low n Achievement was established by dividing the distribution of n Achievement scores of all Ss in the study into thirds.

Group I consists of mentally retarded boys enrolled in special classes. The first matter deserving attention is the relationship between n Achievement and intelligence. It might seem that the "between" groups data in Table 1. suggests a relationship between these factors. A careful scrutiny of the data in Table 4., in which scores are broken down by n Achievement level suggests that the apparent relationship does not hold within Group I. The Table 4., column 1 data show only slight differences between high and low n Achievement scores, presented in the Matrices measure of intelligence. Table 7, column 3, also suggests that this is so. n Achievement scores, presented in Table 4., show little connection with the academic grade placement; grade placement tends to be consistent in the presence of fluctuating n Achievement scores. This too is substantiated by Table 7. The relationships between intelligence and academic grade placement (Table 7) are significant, which is a reasonable expectation; the introduction of the n Achievement score in a multiple regression analysis does not materially increase the ability to predict grade placement over that obtained with the intelligence measure alone.

Insert Tables 4, 5, 6, and 7 about here

In summary, the Group I subjects, those in special classes, are below average on all measures except the number of words they expressed. Intellectual ability and academic performance are positively correlated; the introduction of the n Achievement score in a multiple regression with academic performance does not materially augment the relationship.

Group II (mentally retarded, regular classes) differs from Group I in that the level of intelligence, by mean Matrix score, is a little higher. The mean score is significantly below that of the controls, however. Tables 1, 5, and 7 present the relevant data. The Matrices score, n Achievement, and grade placement scores are higher than those in Group I. The number of words, which might be construed as a function of anxiety is lower, however. As with Group I, these subjects show no significant relationship between intelligence and n Achievement in Table 5. The number of words and n Achievement score are also unrelated. N Achievement and grade placement show no consistency, nor does the inclusion of n Achievement scores in the multiple correlation against academic grade placement increase the significance of that relationship.

Group III consists of 25 of normal intelligence. Their Matrices scores are considerably higher than those of the experimental groups I and II. Tables 1, 6 and 7 present relevant data. On all measures shown in Table 1, save the number of words, an issue speculated on earlier, Group III is well above the other groups in performance. The only significant relationship within Group III is that shown in Table 7 between Matrices score and academic achievement; an insignificant r obtains between n Achievement and grade point average.

Discussion

The study has considered the conceptual status and, secondarily, the practical significance of the achievement motive in a mentally retarded population.

Practically, n Achievement was not found to be related to grade placement in any of the groups. However, remaining from the relationship between n Achievement and independence training, it was predicted and the results confirmed that mentally retarded children in this population have lower n Achievement scores. It should be emphasized that this is presumably due to the factor of differential childhood training, and not to the discrepancy in the intellectual capacity.

The results which show greater fear of failure among mentally retarded children not in special classes lead to some interesting speculations on the impact of curricula for the mentally retarded. The possibilities here are that while less academic achievement results from special class placement, less fear of failure is engendered. This is demonstrated in the data on "fear of failure" imagery in Table 3. The resolution of this dilemma is to be made in terms of an a priori value decision on the purpose for organizing special curricula for the retarded.

The addition of n Achievement scores to the correlation between Matrices scores and academic achievement, in the form of a multiple "r" does not materially increase the significance of the relationship. The measure does not seem sufficiently sensitive at this point to gauge as broad an area of behavior as academic achievement.

The theoretical findings, on the other hand, are more striking. Achievement motivation does not seem to be related to intelligence. The lower scores in Groups I and II seem to support the speculation that the retarded do, in fact, receive less independence demands from their parents in childhood. Clearly, this opens up a range of issues; one problem suggested is the need to look deliberately into the child-rearing values held by mothers of handicapped children. The studies of Sears et al. (1956) would seem to be a suitable model. Another sort of problem would be an evaluation of pre-school experiences for the handicapped not as is usually done, in light of their "socialising" value, but rather in terms of the specific behavioral demands placed on the children. One appropriate dimension of behavior would seem to be that of dependence-independence.

Another aspect of the demonstrated independence of n Achievement scores and Matrix scores is that the Matrices scale stands as a useful control device in the design of experiments using primarily verbal materials, and requiring relevant though language-free measures of intellectual ability.

Still another comment that seems relevant is the fact that the presence of mental retardation did not render the use of projective material wholly inappropriate. Table 1. shows the mentally retarded Group I subjects at least as voluble as the normals. This finding casts doubt on the reservations usually expressed about using thematic projective materials with the retarded.

A corollary to this is the finding that sheer fluency does not determine the n Achievement score. This demonstrates that the McClelland scoring system is independent of mere fluency.

Summary and Conclusions

This study has attempted to evaluate the conceptual and empirical status of the achievement motive in the study of mental retardation, using two groups of mentally retarded, educable adolescent males, and a comparable group of normals.

The empirical findings of the study suggest that the n Achievement measure is, at the moment, not applicable to the prediction of academic performance either in a first-order correlational relationship, or in a multiple correlational relationship with an intelligence measure.

The theoretical findings suggest that mentally retarded children are exposed to atypical child-rearing practices, at least as far as later achievement motivation is concerned. This gives some credence to the observation that parents of mentally retarded children have a different set of expectations which they prefer to their children.

Another theoretical finding is that educable children exposed to a special curriculum show evidence of this treatment in personality; specifically the fear of failure imagery which is less apparent than in educables who remain in regular classes.

As a note on methodology the Progressive Matrices appeared to be a valuable tool for measuring intelligence without the confounding introduced by the more conventional verbal scales.

It would seem from this study that attention might be paid to the careful definition of sample behaviors to which the McClelland motive assessment might be applied.

Also, it would seem profitable to look carefully into the specific values and concepts which parents hold concerning the raising of their retarded children.

Suitable attention might be profitably turned to the careful articulation of the anticipated outcomes of education desired by those who plan curricula for the mentally retarded. This refers specifically to the issues of academic achievement and personality.

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Footnotes

1. The research reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare.

2. We wish to thank Mrs. Jack Carpenter who assisted in scoring.

3. Since the g Achievement scores are not normally distributed a square root transformation was employed and all statistics were calculated with the transformed scores. All means reported are of raw scores, however.

Table 1

Mean Scores of Four Measures for All Subjects

	Group I (Mentally Retarded, Special Classes) (N = 47)	Group II (Mentally Retarded, Non-Special Classes) (N = 42)	Group III (Normal) (N = 60)
R Achievement	2.89	3.36	5.43
Progressive Matrices	10.40	15.33	22.03
Grade Placement (California)	3.09	5.63	11.73
Number of Words	173.04	143.79	162.05

Table 2.

Progressive Matrices, Grade Placement, and n Achievement Means for Matched Groups.

	Progressive Matrices	Grade Placement (California)	n Achievement
Group Ia (Mentally Retarded, Special Classes). (N = 22)	12.32	3.45	3.55
Group IIa (Mentally Retarded, Non-Special Classes). (N = 22)	13.45	5.46	2.95

Table 3.

Number of Subjects Showing Fear of Failure Imagery in the Three Experimental Groups.

	Group I (Mentally Retarded, Special Classes)	Group II (Mentally Retarded, Non-Special Classes)	Group III (Normal)
Fear of Failure Imagery Present	6	15	23
Fear of Failure Imagery Absent	41	27	37

Table 4.

Group X' (Mentally Retarded, Special Classes) Mean Scores Grouped by Achievement Level.

	Progressive Matrices	Grade Placement (California)	Number of Words Per Protocol
High n Ach.			
($\bar{X}$ = 9.71)			
($\underline{N}$ = 7)	10.89	3.60	186.20
Medium n Ach.			
($\bar{X}$ = 3.75)			
($\underline{N}$ = 16)	11.38	3.11	179.25
Low n Ach.			
($\bar{X}$ = 0.33)			
($\underline{N}$ = 24)	9.83	2.90	163.88
Overall	10.35	3.08	173.04

Table 5.

Group II (Mentally Retarded, non-Special Classes) Mean Scores Grouped by n Achievement Level.

	Progressive Matrices	Grade Placement (California)	Number of Words Per Protocol
High n Ach.			
(X = 7.5)			
(N = 10)	15.3	5.77	169.5
Medium n Ach.			
(X = 3.66)			
(N = 13)	15.50	5.65	116.00
Low n Ach.			
(X = 0.57)			
(N = 19)	15.78	5.67	146.53
Overall	15.46	5.65	143.79

Table 6.

Group III (Normal) Mean Scores Grouped by R Achievement Level.

	Progressive Matrices	Grade Placement (California)	Number of Words Per Protocol
High R Ach. ($\bar{X}$ = 10.22) ($\underline{N}$ = 23)	21.91	11.85	154.00
Medium R Ach. ($\bar{X}$ = 3.74) ($\underline{N}$ = 19)	22.16	11.32	150.00
Low R Ach. ($\bar{X}$ = 1.11) ($\underline{N}$ = 18)	22.06	12.07	146.33
Overall	22.03	11.75	162.05

Table 7.

Coefficients of Correlation for Variables in the Groups

	Matrices & Grade Placement	IQ Ach. & Grade Placement	Matrices & IQ Ach.	IQ Ach. & Grade Point Average
Group I (Mentally Retarded, Special Classes)	.347*	.262	.096	-
Group II (Mentally Retarded, Non-Special Classes)	.303*	-.084	-.156	-
Group III (Normal)	.358**	.005	.064	-.055

*p < .05

**p < .01